Claims

[c1] A system for detecting user entry into a defined danger zone surrounding a saw blade, comprising:

a non-conducting member defining an opening therein for receiving a saw blade;

a conductive sensor situated on the non-conducting member adjacent the opening to define a danger zone;

a voltage source for applying a voltage to the sensor; and

a monitor circuit configured to detect a change in the capacitance of the sensor to signal a user entry into the danger zone.

[c2] The system of claim 1, wherein the sensor at least partially surrounds the opening.

[c3] The system of claim 2, wherein the non-conducting member defines an outfeed end, and wherein a portion of the sensor situated adjacent the outfeed end is enlarged to define an enlarged outfeed danger zone.

[c4] The system of claim 1, further comprising a plurality of sensors situated on the non-conducting member defining a plurality of danger zones.

[c5] The system of claim 4, wherein the non-conducting member defines infeed and outfeed ends, and wherein respective sensors are situated adjacent the infeed and outfeed ends to define infeed and outfeed danger zones.

[c6] The system of claim 1, further comprising an alarm circuit coupled to the monitor circuit for activating an alarm in response to the change in capacitance.

[c7] The system of claim 1, further comprising a motor control circuit coupled to the monitor circuit for controlling a motor driving the saw blade in response to the change in capacitance.

[c8] The system of claim 1, further comprising a blade braking device coupled to the monitor circuit for stopping the blade in response to the change in capacitance.

[c9]

The system of claim 1, wherein the monitor circuit comprises:

an impedance coupled between the voltage source and the sensor; and

a voltage monitor coupled to the sensor to detect changes in the voltage drop across the impedance in response to the capacitance change.

[c10] The system of claim 1, wherein the monitor circuit comprises a bridge circuit coupled to the sensor, wherein the capacitance change imbalances the bridge.

[c11] The system of claim 10, wherein the bridge is coupled to a comparitor.

[c12] The system of claim 1, wherein the voltage source comprises an oscillator.

[c13] The system of claim 12, wherein the oscillator is tuned to a predetermined frequency, and wherein the frequency changes in response to the change in capacitance.

[c14] The system of claim 1, wherein the non-conductive member is receivable by an opening in a work surface.

[c15] The system of claim 1, wherein the non-conductive member forms a blade guard.

[c16] A power saw system, comprising:

a blade;

a motor driving the blade;

a table for supporting a work piece, the table defining an opening therethrough;

a non-conducting insert defining a slot therethrough for receiving a saw blade, the non-conducting insert received by the opening in the table;

a conductive sensor situated on the insert adjacent the slot to define a danger zone;

a voltage source for applying a voltage to the sensor; and

a monitor circuit configured to detect a change in the capacitance of the sensor to signal a user entry into the danger zone.

[c17] The saw system of claim 16, further comprising an alarm circuit coupled to the monitor circuit for activating an alarm in response to the change in capacitance.

[c18] The saw system of claim 16, further comprising a motor control circuit coupled to the monitor circuit for controlling operation of the motor in response to the change in capacitance.

[c19] The saw system of claim 18, wherein the motor control circuit prevents the motor from starting in response to the change in capacitance.

[c20] The saw system of claim 18, further comprising a blade braking device coupled to the monitor circuit for stopping the blade in response to the change in capacitance.

[c21] A power saw system, comprising:

a blade;

a motor driving the blade;

a non-conducting blade guard having the blade mounted therein;

a conductive sensor situated on the blade guard adjacent the blade to define a danger zone;

a voltage source for applying a voltage to the sensor; and

a monitor circuit configured to detect a change in the capacitance of the sensor to signal a user entry into the danger zone.

[c22] A system for detecting user entry into a defined danger zone surrounding a saw blade, comprising:

a non-conducting member defining an opening therein for receiving a saw blade;

a conductive sensor situated on the non-conducting member adjacent the opening to define a danger zone;

a voltage source for applying a voltage to the sensor; and

means for detecting a change in the capacitance of the sensor to signal a user entry into the danger zone.

[c23]

A method for detecting user entry into a defined danger zone surrounding a saw blade, comprising:

situating a non-conducting member adjacent a saw blade, the non-conducting member having a conductive sensor attached thereto defining

a danger zone;

applying a voltage to the sensor; and

detecting a change in the capacitance of the sensor to signal a user entry into the danger zone.